

REMARKS

Claims 1-23 remain pending in the application. Reconsideration of the rejection and allowance of the pending application in view of the following remarks are respectfully requested.

Request for PTO-1449 with all documents initialed

Applicants note that the Examiner has yet to return an Examiner signed copy of the PTO-1449 submitted with the IDS filed on March 30, 2004 with each listed document initialed.

Accordingly, in order to ensure that the listed documents are considered and are properly listed on the face of the patent (should the instant application issue), Applicants respectfully request that the Examiner initial the documents listed on the previously submitted form PTO-1449, sign the form PTO-1449, and provide a copy of the form PTO-1449 with the next Office Action.

35 U.S.C. §103 Rejections

Rejection of claims 1-3, 8, 11-17 and 19 over Alaze, Hall and Buschmann

In the Office Action, the Examiner rejected claims 1-3, 8, 11-17, 19 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Alaze et al. (U.S. Patent No. 5,167,442) in view of Hall (International Publication No. WO 95/19282) and Buschmann et al. (U.S. Patent No. 6,086,515). Applicants respectfully traverse this rejection for at least the following reasons.

Claim 1 is directed to a brake fluid pressure maintaining apparatus for a vehicle which includes, inter alia, a master cylinder that generates a brake fluid pressure when a driver steps on a brake pedal, a check valve interposed between the master cylinder and a wheel brake, and a normally-open electromagnetic valve which is closable to temporarily maintain the brake fluid pressure of the wheel brake even after release of stepping on the brake pedal. As recited clearly in claim 1, wherein the normally-open electromagnetic valve is controllable as follows:

when it is detected that the vehicle is stopped, the electromagnetic coil is energized and the normally-open electromagnetic valve is closed;

by changing the value of the current to be applied to the electromagnetic coil, an attracting force for closing the normally-open electromagnetic valve is changed; and

by setting the attracting force at a given value, the brake fluid pressure to be maintained on the wheel brake side is set.

Additionally, claim 14 recites the following:

means for reducing a fluid pressure of the wheel brake by adjusting an attracting force between a movable core and a fixed core of a normally-open electromagnetic valve when the brake fluid pressure of the wheel brake is higher than an attracting force of a given value,

wherein the normally-open electromagnetic valve is capable of the following function: when it is detected that the vehicle is stopped, an electromagnetic coil of the normally-open electromagnetic valve is energized and the normally-open electromagnetic valve is closed.

In the Office Action, the Examiner asserts that Alaze's valve unit 24 corresponds to Applicants' claimed normally-open electromagnetic valve, and presumes that Alaze's valve unit 24, although not specifically disclosed in Alaze, performs the relief function of Applicants' electromagnetic valve. Applicants respectfully submit that the Examiner's presumption is improper, at least because Alaze does not disclose or suggest that the valve unit 24 controls changing the value of a current applied to the electrical coil 56 of the valve unit 24, as Applicants recite in independent claim 1.

Applicants note that the electromagnetic valve of Alaze is provided with a spring 64 having a relief function and that the relief pressure of the electromagnetic valve is determined by the spring constant of the spring 64. Because the relief pressure of Alaze is determined by the spring constant, the relief pressure in Alaze is constant. The invention, in contrast, provides for an arrangement wherein the relief pressure is changeable, i.e., controlled in the claimed manner.

On page 3 of the instant Final Office Action, the Examiner acknowledges that Alaze does not specifically describe Applicants' claimed relief function, but asserts that Hall shows that it is well known to control the total biasing forces acting on a valve and the brake pressure levels in a wheel by changing the level of a current applied to a coil. Applicants respectfully disagree.

Hall relates to an electronic pressure relief system for traction control which includes an isolation valve 32 which is used to enable brake fluid to pass through a conduit 18 into a reservoir 14 when pressure is created within conduit 18 by a pump 30. See, e.g., the last paragraph of page 5 of Hall. Hall's pressure relief system also includes a normally open valve 24, which is disposed between the isolation valve 32 and a wheel brake 20. See Figure 1 of Hall. Although Hall's isolation valve 32 is electromagnetically actuated based on the application of a current, the isolation valve 32 of Hall, while apparently participating in the control of the brake fluid pressure applied to Hall's wheel brake 20, does not function like the invention. To the contrary, the brake fluid pressure in Hall is utilized to activate traction control, i.e., in the case of uncontrollable spinning when the vehicle fails to hold proper contact with the road

surface. The invention, on the other hand, utilizes pressure control when a vehicle stop condition is detected and when the vehicle is on a sloping road.

Furthermore, Applicants submit that Hall does not disclose or suggest that the normally open valve 24 controls changing the value of a current applied to an electromagnetic coil of the valve 24.

Thus, Applicants respectfully submit that the combination of Alaze and Hall fails to disclose or suggest the combination of features recited in at least claim 1.

Further, as Hall's isolation valve 32 performs a function disparate from Alaze's valve unit 24 (i.e., relieving pressure in a conduit versus relieving pressure on a wheel brake), Applicants respectfully submit that it would not be obvious to combine the features of these valves in the manner suggested by the Examiner.

Applicants also submit that Buschmann fails to overcome the above-noted deficiencies of Alaze and Hall. That is, Applicants respectfully submit that the combination of Alaze, Hall and Buschmann fails to disclose or suggest a normally-open electromagnetic valve which is configured to control changing the value of a current to be applied to an electromagnetic coil to change an attracting force for closing the electromagnetic valve, and setting the attracting force at a given value to set brake fluid pressure to be maintained on a wheel brake side, as recited in Applicants' independent claim 1.

Applicants acknowledge that Buschmann discloses a system for applying brake pressure when the vehicle is parked and turned off. However, Buschmann does not cure the deficiencies of either Alaze and Hall, at least because Buschmann is merely relied "only" to show typically states of valves. Buschmann shows a brake system to

retain a vehicle on an inclined roadway when starting uphill. Buschmann shows output signals of the sensors are sent to the inputs E of an electronic controller 17 which evaluates the signals and furnishes braking pressure control signals through its outputs A for the actuation of the inlet and outlet valves 3, 4, 5, 6 and 7, 8, 9, 10 and the separating valve 15 and for switching on and off of the pump drive motor 11. Anti-lock control is performed in a known fashion by way of the inlet valves 3, 4, 5, 6 and the outlet valves 7, 8, 9, 10. But, as discussed above, Buschmann does not compensate for the deficiencies of the remaining applied references, which appears to be admitted by the Examiner since Buschmann is being relied "only" to show typically states of valves.

Nor has the Examiner identified in any of the applied documents a means for reducing a fluid pressure of the wheel brake by adjusting an attracting force between a movable core and a fixed core of a normally-open electromagnetic valve when the brake fluid pressure of the wheel brake is higher than an attracting force of a given value, wherein the normally-open electromagnetic valve is capable of the following function: when it is detected that the vehicle is stopped, an electromagnetic coil of the normally-open electromagnetic valve is energized and the normally-open electromagnetic valve is closed (claim 14). Again, Alaze does not disclose or suggest that the controlling the changing of the value of a current applied to the electrical coil 56 of the valve unit 24. Furthermore, Hall relates to an electronic pressure relief system for traction control which includes an isolation valve 32 which is used to enable brake fluid to pass through a conduit 18 into a reservoir 14 when pressure is created within conduit 18 by a pump 30. See, e.g., the last paragraph of page 5 of Hall. While it is true that Hall's pressure relief system also includes a normally open valve 24, which is disposed between the

isolation valve 32 and a wheel brake 20, and that Hall's isolation valve 32 is electromagnetically actuated based on the application of a current, the isolation valve 32 of Hall, while apparently participating in the control of the brake fluid pressure applied to Hall's wheel brake 20, does not function like the invention. Finally, Buschmann merely discloses a system for applying brake pressure when the vehicle is parked and turned off, and is entirely silent with regard to a means for reducing a fluid pressure of the wheel brake by adjusting an attracting force between a movable core and a fixed core of a normally-open electromagnetic valve when the brake fluid pressure of the wheel brake is higher than an attracting force of a given value, wherein the normally-open electromagnetic valve is capable of the following function: when it is detected that the vehicle is stopped, an electromagnetic coil of the normally-open electromagnetic valve is energized and the normally-open electromagnetic valve is closed.

Dependent claims 2, 3, 8, 11-13, 15-17 and 19 are also submitted to be in condition for allowance for at least the reasons set forth above with respect to independent claims 1 and 14.

For at least these reasons, Applicants respectfully submit that the 35 U.S.C. § 103(a) rejection of independent claim 1, 2, 3, 8, 11-17 and 19 is improper, and respectfully request the Examiner to withdraw the rejection and allow the claim.

Rejection of claim 20 over
Alaze, Hall and Buschmann

At page 4 of the Office Action, the Examiner broadly asserts that Alaze's device, as modified by Hall and Buschmann, is capable of functioning in the manner recited in claim 20. Applicants respectfully disagree.

Claim 20 recites, in part, the following:

means for adjusting a brake fluid pressure in the wheel brake on an ascending or descending slope by adjusting a current to a normally-open electromagnetic valve having an electromagnetic coil disposed between a movable core and a fixed core to increase or decrease an attracting force between the movable core and the fixed core,

wherein after the brake fluid pressure of the wheel brake is lowered to a given value under the control of the adjusting means, a value of the current applied to the electromagnetic coil is lowered to reduce the attracting force acting on the movable core, the brake fluid pressure of the wheel brake becomes higher than the attracting force that can close the normally-open electromagnetic valve, and the high brake fluid pressure of the wheel brake acts on a seal surface so that a valve body is separated from a valve seat of the seal surface against the attracting force to thereby open a valve hole so that the normally open electromagnetic valve is opened and in the opened state, the fluid pressure of the wheel brake is returned through the valve hole to the master cylinder to lower the fluid pressure of the wheel brake.

Applicants submit that Alaze fails to disclose or suggest that the current to the valve unit 24 is adjusted by an adjusting means, that brake fluid pressure of the wheel brake 14 is lowered to a given value under the control of such adjusting means, or that a value of the current applied to the valve unit 24 is lowered to reduce an attracting force acting on the armature 59. In fact, as discussed above, the electromagnetic valve of Alaze is not adjustable, contrary to that recited in the claimed invention.

Also, as discussed above, Hall's isolation valve 32 does not function in the same way as the invention. Applicants also submit that Hall fails to disclose or suggest that a current applied to the normally open valve 24 is adjusted by an adjusting means.

Applicants also submit that Hall fails to disclose that brake fluid pressure of the wheel brake 20 is lowered to a given value under the control of an adjusting means, or that a value of the current applied to the normally open valve 24 is lowered to reduce an attracting force on a movable coil. In fact, as discussed above, there is no adjustment of the Hall normally open valve 24, at all. If there is to be any interpretation, the isolation

valve may be adjusted; however, the isolation valve is not configured to adjust a brake fluid pressure in the wheel brake on an ascending or descending slope by adjusting a current to an electromagnetic valve disposed between a movable core and a fixed core. Accordingly, Hall cannot show these features of the claimed invention.

Applicants also submit that Buschmann fails to overcome the above-noted deficiencies of Alaze and Hall for the reasons noted above. Thus, Applicants respectfully submit that the combination of Alaze, Hall and Buschmann fails to disclose or suggest a means for adjusting a brake fluid pressure in a wheel brake on an ascending or descending slope by adjusting a current to an electromagnetic valve disposed between a movable core and a fixed core to increase or decrease an attracting force between the movable core and the fixed core, where after the brake fluid pressure of the wheel brake is lowered to a given value under the control of the adjusting means, a value of the current applied to the electromagnetic valve is lowered to reduce the attracting force acting on the movable core, as recited in Applicants' independent claim 20. Thus, Applicants submit that the Examiner has failed to identify in any of the applied documents the combination of features recited in claim 20.

For at least these reasons, Applicants respectfully submit that the 35 U.S.C. § 103(a) rejection of independent claim 20 is improper, and respectfully request the Examiner to withdraw the rejection and allow the claim.

Rejection of claims 4-7, 18, 21 and 23

The Examiner rejected claims 4-7, 18, 21 and 23 under 35 U.S.C. § 103(a) as being unpatentable over Alaze et al. in view of Hall and Buschmann et al., and further in

view of Akamatsu et al. (U.S. Patent No. 5,771,933). Applicants respectfully traverse this rejection for at least the following reasons.

Applicants respectfully submit that Akamatsu et al., which is directed towards a three-position solenoid valve, fails to overcome the above-noted deficiencies of Alaze, Hall, and Buschmann. That is, Applicants respectfully submit that the combination of Alaze, Hall, Buschmann, and Akamatsu et al. fails to disclose or suggest a normally-open electromagnetic valve which is configured to control changing the value of a current to be applied to an electromagnetic coil to change an attracting force for closing the electromagnetic valve, and setting the attracting force at a given value to set brake fluid pressure to be maintained on a wheel brake side, as recited in Applicants' independent claim 1.

For at least these reasons, Applicants respectfully submit that the rejection of dependent claims 4-7, 18, 21 and 23, which depend from claim 1, is improper, and respectfully request the Examiner to withdraw the rejection and allow these claims.

Rejection of claims 1-3, 8, 9, 14-17, 19 and 20
And Claims 4-7, 10-13, 18, 21 and 23.

In the Office Action, the Examiner also rejected claims 1-3, 8, 9, 14-17, 19 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Waku et al. (Japanese Patent No. 2001225731) in view of Hall and Buschmann, and rejected claims 4-7, 10-13, 18, 21 and 23 under 35 U.S.C. § 103(a) as being unpatentable over Waku in view of Hall and Buschmann, and further in view of Akamatsu. Applicants respectfully traverse these rejections for at least the following reasons.

In the Office Action, the Examiner asserts that
(P27377 00053427.DOC)

"due to the strong similarity between JP '731 and applicants design... the claimed features are believed to be readily apparent from the drawings of this reference."

To date, the Examiner has provided Applicants with an English language translation of only Waku's Abstract.

Applicants respectfully submit that neither Waku's Abstract nor the drawings disclose (i) a normally-open electromagnetic valve which is configured to control changing the value of a current to be applied to an electromagnetic coil to change an attracting force for closing the electromagnetic valve, and setting the attracting force at a given value to set brake fluid pressure to be maintained on a wheel brake side, as recited in Applicants' independent claim 1, or (ii) a means for reducing a fluid pressure of the wheel brake by adjusting an attracting force between a movable core and a fixed core of a normally-open electromagnetic valve when the brake fluid pressure of the wheel brake is higher than an attracting force of a given value, wherein the normally-open electromagnetic valve is capable of the following function: when it is detected that the vehicle is stopped, an electromagnetic coil of the normally-open electromagnetic valve is energized and the normally-open electromagnetic valve is closed as recited in independent claim 14, or (iii) a means for adjusting a brake fluid pressure in a wheel brake on an ascending or descending slope by adjusting a current to an electromagnetic valve disposed between a movable core and a fixed core to increase or decrease an attracting force between the movable core and the fixed core, where after the brake fluid pressure of the wheel brake is lowered to a given value under the control of the adjusting means, a value of the current applied to the electromagnetic valve is lowered

to reduce the attracting force acting on the movable core, as recited in independent claim 20.

Waku is directed to a brake fluid pressure control device with a normally open solenoid valve between a master cylinder and a wheel brake for allowing the closing of the vale when temporarily holding a brake fluid pressure of the wheel brake after canceling a braking operation. To accomplish these features, Waku discloses in the Abstract that

a valve chest 34 is communicated with a first liquid pressure passages 21, 22 and a valve hole 31 is communicated with a second liquid pressure passages 31, 32 and a relief spring is provided between the moveable core 45 and a valve element 35 for providing a spring force for pushing the valve element 35 against a valve seat in the state of seating the valve element 35 to the valve seat 32.

As is apparent, Waku fails to disclose a means for adjusting a brake fluid pressure in a wheel brake on an ascending or descending slope by adjusting a current, nor does Waku show controlling changing the value of a current and setting the attracting force at a given value. Additionally, as discussed above, Hall, Buschmann and Akamatsu also do not teach the features.

Applicants respectfully submit that the 35 U.S.C. § 103(a) rejections of claims 1-23 based on Waku, Hall, Buschmann, and Akamatsu are improper and that these rejections be withdrawn.

Response to the Examiner's Response to Arguments

In setting forth the various obviousness rejections, the Examiner never fully explains the motivation for combining the teachings of the applied documents and

merely concludes that it would have been obvious to combine the teachings of these documents. Applicants remind the Examiner that in establishing a *prima facie* case of obviousness under 35 U.S.C. § 103, it is incumbent upon the Examiner to provide a reason *why* one of ordinary skill in the art would have found it obvious to modify a prior art reference or to combine reference teachings to arrive at the claimed invention. See *Ex parte Clapp*, 227 USPQ 972 (B.P.A.I. 1985). To this end, the requisite motivation must stem from some teaching, suggestion or inference in the prior art as a whole or from the knowledge generally available to one of ordinary skill in the art and not from Applicant's disclosure. See, for example, *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988). As noted above, the applied documents relate to different devices which function differently. Moreover, none of the documents teach or suggests modifying the structure or operation of Alaze or Wagu in the manner asserted by the Examiner, i.e., to additionally include the features acknowledged to be missing in Alaze and Wagu.

Further, Applicants note that, in addition to showing the recited arrangement of elements (as alleged by the Examiner), the applied art must also provide the necessary motivation or rationale for modifying/combining the art of record in the manner asserted by the Examiner. Specifically, Applicants note that none of the applied art discloses or suggests any advantages achieved as a result of the recited brake fluid pressure maintaining apparatus for a vehicle.

Because the art of record fails to provide any reasonable explanation why one ordinarily skilled in the art would utilize such an arrangement, and/or fails to disclose or suggest the problems that such an arrangement would address, Applicants submit that

the art of record fails to provide the requisite motivation or rationale as to *why* one ordinarily skilled in the art would modify Alaze or Wagu in the manner asserted by the Examiner. That is, Applicants submit that because the Examiner has not set forth an articulable reason found in the art of record for modifying Alaze or Wagu in the manner asserted by the Examiner, the instant rejection has no basis in the art of record, such that the rejection is improper and should be withdrawn.

Rejections based on 35 U.S.C. § 103 must rest on a factual basis with these facts being interpreted without hindsight reconstruction of the invention from the prior art. The Examiner has the initial duty of supplying the factual basis for the rejection and may not, because of doubt that the invention is patentable, resort to speculation, unfounded assumption or hindsight reconstruction to supply deficiencies in the factual basis. *See In re Warner*, 379 F.2d 1011, 1017, 154 USPQ 173, 177 (CCPA 1967). As stated in *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-313 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984):

[t]o imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.

Applicants submit that the only reason to combine the teachings of the applied references in the manner proposed by the Examiner is the result of a review of Applicants' disclosure and the application impermissible hindsight.

Accordingly, Applicants submit that the asserted rejection of independent claims 1, 14 and 20 is improper and should be withdrawn.

CONCLUSION

In view of the foregoing remarks, Applicants submit that all of the claims are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue. The Examiner is invited to contact the undersigned at the telephone number listed below, if needed. Applicants hereby make a written conditional petition for extension of time, if required. Please charge any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 19-0089.

Respectfully submitted,
Takayuki WAGU et al.



Andrew M. Calderon
Registration No. 38,093

November 1, 2006
GREENBLUM & BERNSTEIN, P.L.C.
1950 Roland Clarke Place
Reston, VA 20191
(703) 716-1191